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FOREST SCENERY.

There is an indescribable pleasure, in occasionally wandering among scenes like this, to a person possessing a taste for the beauties of nature and a love of solitude, especially if they are connected with associations of early life and departed friends. Many of our readers we have no doubt, will be ready to agree with us on this subject, and may be reminded of some forest scene which they may have admired, by the sight of the sketch we here present to them. It is of little importance whether we can fix upon the spot which it resembles: for we have thousands of small streams like this, flowing among objects as rude, and overshadowed by trees as various and wild.

Many a road which we follow in our excursions, or our travels, leads us to spots as secluded from the haunts of men, and as destitute of the signs of inhabitants: to those places, peculiar to our country, where there is to be seen scarcely the slightest trace of a human hand; and to them we are strongly drawn, by a taste which we may be unable fully to define or even to account for.

It may be doubted, however, whether even an American can learn to regard his favorite retreats with the highest relish, until he has suffered from the want of them in a foreign land. In Europe it is difficult to find, within the compass of the ordinary tours of travellers, forest

scenes which bear sufficiently the features of pure nature. In one place the streams have been made to flow through artificial channels; in another, the trees may be ancient and untrimmed: but they are perhaps planted in rows. In some of the wildest parts of the Appennines we have found, to our disappointment, immense chestnut trees, which made a truly American appearance from a distance, half surrounded by walls of stone, carefully laid to support the earth about the roots, while the neighboring inhabitants regularly visited them to gather their nuts for bread.

We have realised this difference with regret, in many parts of several different countries of Europe; and a young South American, a nephew of the excellent President Joaquim Mosquera, a few years ago expressed his attachment to the forest scenery of his native land in terms of peculiar force and eloquence. "I have spent a year in Europe," said he, "but I was unable to stay longer. I had many kind friends, and they used all their exertions to make me complete my allotted time abroad. But I assure you, I would rather spend one day among the majestic solitudes of our Columbian mountains, than a year in the cities and palaces of the Old World. Every thing seems infected by folly and vice: all is artificial, childish or impure. But the noble mountains, rising to the clouds, and the wild rocks and dashing waterfalls, with the venerable forest-trees that have stood for ages, fill my mind with feelings that, I love and long to experience again. They are free from every association of the weakness and the wickedness of men. I am now on my way home; and it is with sincere satisfaction that I reflect, I am never to see Europe again!"

Some years since while on a journey, we accidentally fell into conversation with an unknown fellow-traveller, on the different forms of trees, and the various appearances they have at different sea-

sons of the year, which happened to be a favourite subject of our attention. To our surprise he soon showed himself far more familiar with it, and able to give much interesting information. He proved to be a young artist, who had already begun to excite admiration with his first landscapes, and who has long since ranked among the first of our painters. Some months afterwards he wrote an essay on "American Scenery," for the American Lyceum, from it we take the following.

"As mountains are the most conspicuous objects in landscape, they will take the precedence in what I may say on the elements of American scenery.

"It is true that in the eastern part of this continent there are no mountains that vie in altitude with the snow-crowned Alps—that the Alleghanies and the Catskills are in no point higher than five thousand feet; but this is no inconsiderable height; Snowdon in Wales, and Ben-Nevis in Scotland, are not more lofty; and in New Hampshire, which has been called the Switzerland of the United States, the White Mountains almost pierce the region of perpetual snow. The Alleghanies are in general heavy in form, but the Catskills, although not broken into abrupt angles like the most picturesque mountains of Italy, have varied, undulating, and exceedingly beautiful outlines—they heave from the valley of the Hudson like the subsiding billows of the ocean after a storm.

"American mountains are generally clothed to the summit by dense forests, while those of Europe are mostly bare, or merely tinted by grass or heath. It may be that the mountains of Europe are on this account more picturesque in form, and there is a grandeur in their nakedness; but in the gorgeous garb of the American mountains there is more than an equivalent; and when the woods "have put their glory on," as an American poet has beautifully said, the purple heath and yellow furze of Europe's moun-

tains are in comparison but as the faint secondary rainbow to the primal one.

"But in the mountains of New Hampshire there is a union of the picturesque, the sublime, and the magnificent; there the bare peaks of granite, broken and desolate, cradle the clouds; while the valleys and broad bases of the mountains rest under the shadow of noble and varied forests; and the traveller who passes the Sandwich range on his way to the White Mountains, of which it is a spur, cannot but acknowledge, that although in some regions of the globe nature has wrought on a more stupendous scale, yet she has nowhere so completely married together grandeur and loveliness—there he sees the sublime melting into the beautiful, the savage tempered by the magnificent.

"I will now speak of another component of scenery, without which every landscape is defective—it is water. Like the eye in the human countenance, it is a most expressive feature: in the unripled lake, which mirrors all surrounding objects, we have the expression of tranquillity and peace—in the rapid stream, the headlong cataract, that of turbulence and impetuosity.

"In this great element of scenery, what land is so rich? I would not speak of the great Lakes, which are in fact inland seas—possessing some of the attributes of the ocean, though destitute of its sublimity; but of those smaller lakes, such as Lake George, Champlain, Winnipisiogee, Otsego, Seneca, and a hundred others, that stud like gems the bosom of this country. There is one delightful quality in nearly all these lakes—the purity and transparency of the water. In speaking of scenery it might seem unnecessary to mention this; but independent of the pleasure that we all have in beholding pure water, it is a circumstance which contributes greatly to the beauty of landscape; for the reflections of surrounding objects, trees,

mountains, sky, are most perfect in the clearest water; and the most perfect is the most beautiful.

"I would rather persuade you to visit Lake George, the beautiful "Horrid," than attempt to describe its scenery—to behold you rambling on its storied shores, where its southern expanse is spread, begemmed with isles of emerald, and curtained by green receding hills—or to see you gliding over its bosom, where the steep and rugged mountains approach from either side, shadowing with black precipices the innumerable islets—some of which bearing, a solitary tree, others a group of two or three, or a "goodly company," seem to have been sprinkled over the smiling deep in Nature's frolic hour."

To be continued.

Loadstone on Lake Superior.

The editor of the Detroit Advertiser has received a letter from J. Houghton, Jr. stating that among the many discoveries which have been made in the Mineral Regions of Lake Superior during the past season, there has been one which is of great interest to the man of science. It is the discovery of native load-stone, a variety of the pleistro-magnetic iron ore. It was discovered by Bela Hubbard, Esq., who was carrying on a geological in connection with a United States linear survey, and who has collected the only specimens ever obtained in that region. He was led to the discovery by noticing the great fluctuations in the bearing of the magnetic needle. Its locality is Middle Island, which is two miles Northwesterly from Presque Isle. The island is granite, traversed by dykes of greenstone trap, in two of which (having a course nearly north and south,) the loadstone was found. It is of a crystalline or granular structure, and might by slight examination be taken for a variety of granite. It exhibits polarity, the opposite sides of the same specimen attracting and repelling the north end of the needle. It also attracts iron filings. The Loadstone of different portions of these dykes was observed to exhibit different powers of magnetism.

A Locomotive Engine.*(Concluded from page 69.)*

If it be necessary to know at what height the water stands in the boiler, it is not less so to be certain of the real degree of elastic force the steam possesses; for, should that force not be sufficient, the engine would be unable to accomplish its task.

6. *Of the Slides.*—We have said before, that the slide-valve admits successively the steam above and below the piston of each cylinder, the result of which is the alternate motion, source of the final progressive motion of the engine. The engine-man then having opened the regulator or cock that admits the steam into the pipes, the steam proceeds from the boiler through the tube to the valve-box, and pressing with all its force on the upper part of the sliding valve, compels it to remain in immediate contact with the plane in which it slides, while performing its motion. When the slide is in one situation, the steam acts upon the piston, and pushes it in one direction. In the meanwhile, the steam under the piston escapes. When this first effect has been produced, the slide, by means of its rod, is pushed back in the position. The steam pushes the piston in the opposite direction to its first motion; while the passage communicating in its turn with the aperture, gives free egress to the steam that has produced its effect. The alternate motion continues thus: the slide passing from one position to the other, by which it opens and shuts successively the passages, so that the steam may act alternately above and below the piston. The steam is afterwards led to the chimney, there to augment the current of air by which it causes the draft of the fire.

The motion of the slide is regulated so as to accompany the motion of the piston, but still to precede it by a very short instant; that is to say, that instead of opening the proper passage for the stroke of the piston just at the moment the piston is going to begin that stroke, it opens it a little beforehand. This is called giving a little lead to the slide. By that means, at that moment the piston begins its motion, the steam has already its full action upon it.

7. *Of the Eccentric Motion.*—The al-

ternate motion of the slide is performed by the steam itself.

An eccentric wheel is fastened to the axle, and, as this turns, the eccentric, drawn along by its motion, pushes and draws alternately the rod of the slide.

8. *Of the Drivers.*—Until now we have spoken as if there were only one slide, but, having said there were two cylinders, it is clear that there must be a slide, and consequently an eccentric for each of them.

These two drivers being fixed on the axle, one on one side, and the other on the other side of the eccentric, it is clear that, by pushing that eccentric, by means of a lever, either on one or on the other of the two drivers, the effect of the steam on the piston will immediately be to carry the engine either forwards or backwards, according to the driver with which it has been thrown in gear. The lever, which causes the change of position of the eccentric, is placed in such a manner as to present its handle within the reach of the engine-man, on the board on which he stands.

Besides these several dispositions, in order that the man who directs the engine may himself and of his own accord move the slides, independently of the motion of the axle, the shafts of the eccentrics are not invariably fixed to the slide rods. They are only fastened to them by a notch. By means of a lever acting on the small rod, the engine man can raise the shaft of the eccentric and disengage it from the notch, then the slides are at liberty to move independently of the axle; consequently, it is easy by means of two handles connected with the slide rods, to give to those slides the required motion.

9. *Of the Water Pumps.*—Under the body of the engine are two pumps, the use of which is to replenish the boiler with water. Each of them is placed immediately under the piston rod of one cylinder, and is worked by it. Each pump sucks a part of the water of the tender into the cylinder of the pump, and, on the other hand, forces it from the cylinder of the pump into the boiler, in the usual way. By having two pumps, the replenishing of the boiler is secured, as, in the case one of the two were to get out of order, the other may easily supply its place.

The valves of these pumps are ingen-

ously made of a small metallic sphere, resting on a circular seat, on which it exactly fits. Their action takes place by rising within a cylinder, the sides of which are pierced with four apertures for the passage of the water. The water is introduced from the interior of the cylinder under the spherical ball which it raises, and is diffused in the body of the pump by the apertures. This form of a valve never misses its effect; and the pumps, which, in the beginning, were continually out of order, are free from that defect, since Mr. Melling of Liverpool first introduced that sort of valve.

10. *Of the Steam Regulator.*—The regulator consists of two metallic disks placed above and exactly fitting each other, both having an aperture of the same size. The inferior disk is immovable, and shuts the pipe through which the steam escapes. The superior disk is moveable, by means of a handle, which projects out of the engine; the stem of the handle passes through the moveable disk, and enters the other in its centre, so as to keep them both in a right position over each other. By making the superior disk, by means of the handle, move circularly on the inferior disk, the two apertures may be brought to correspond exactly with each other, and then the passage is entirely open. If only partially moved, the passage is only partially opened; and when the two apertures do not correspond at all, the communication is completely intercepted: when the passage is thus shut, it is the steam itself that keeps the two disks in immediate contact with each other, by pressing with all its force on the superior disk.

11. *Of the Joints or rubbing parts.*—In all the joints of any importance, the oil is fed without interruption by means of a cup, with a wick-syphon, placed above the joint. This cup is made in the form of a school-boy's inkhorn, so that the velocity of the motion may not spill the oil; and there is at the bottom of it a small tube, penetrating to the entrance of the joint. A cotton-wick dipping in the oil of the cup passes into the tube, and, sucking continually the oil out of the cup, drops it into the joint without interruption.

12. *Of the Fire-Grate.*—The grate in the fire-place is not made of a single piece. It is formed of separate bars,

which are placed next to each other at the bottom of the fire-place, where they are supported by their two ends. The advantage of this arrangement is, the facility it affords of replacing them individually by new ones, when they are worn out by the intensity of the fire. Besides, if any accident should happen to the boiler, and make the water run off unexpectedly, thus endangering the engine, one may, by means of a crooked poker, easily turn the bars upside down, and consequently extinguish immediately the fire by letting it fall on the road, with the bars that supported it. It is also thus that every evening the fire box is emptied, after the engine has finished its work.

Such is the construction of the locomotive engines employed on the Railway between Liverpool and Manchester. We have made use for our experiments of no other engines but those. To give a complete idea of them, we have now only to state the dimensions of some of the parts on which the power of the engine more especially depends, as will be seen further down.

The engines on the Liverpool Railway may be ranked in five different classes, as follows:

Class- es.	Diameter of the cylinder.	Stroke of the piston.	Wheels.		Weight, tons.	Effective pressure per sq. in. in the boiler.
	inches.	inches	ft.	in.		
1 -	14	16	4	6	12	50
2 -	15	16	5		12	50
3 -	11	16	5		8 to 9	50
5 -	11	18	5		8 to 9	50

In the fifth class come the first engines used by the company at the opening of the railway; their cylinders are ten inches in diameter, and under; the stroke of the piston, the wheels, and the weight of the engine, vary accordingly. But at present they have nearly ceased to be used on the railway; they scarcely ever undergo any repairs, and none of them will figure in our experiments. We need therefore not enter into any particulars concerning them.

Among the thirty-two engines that have been constructed for the company, and of which thirty are still in their possession, there are

2 of 14 inches, (diameter of the cylinder.
4 of 12 do. [der.
16 of 11 do. with a sixteen inch stroke.

2 of 11 do. with an eighteen inch [stroke.]

The eight others are of inferior proportions, and rank in the fifth class which we mentioned above.

They are all at the effective pressure of 50 pounds per square inch on the boiler.

Home Missions

A Moral Ligament to our Country.

A mere glance discloses various grounds of disunion, in our widely extended land. Western states have their peculiarities and predilections. Southern States have affinities, which bind them into a separate community. The Eastern states are not without their distinctive 'notions.' Local and sectional interests are springing up to an overshadowing size. In the absence of some great central influence, that can easily and naturally, control the more provincial sources of power and sentiment, there is manifest danger, that conflicting interests will swell up into undue proportion. No influence goes out from Washington, sufficient to keep in check the workings of sectional feeling at different parts of the Union. National sentiment does not lead men south of the Potomac, to sympathise cordially with those north of that river; nor does it incline men west of the Alleghanies to take their cast of mind and modes of thinking, from men east of those mountains; nor does it fuse into one mass, the native and the foreign ingredients of our population. This country needs every ligament, that can serve to hold together the materials so greatly extended and often so uncongenial. We have chains of lakes, inland rivers, canals, and railroads. But these, alone, will prove imperfect bonds of union. We have a community of interests, as a nation, and, similarity of political views. But sectional interest, or state pride, or domineering ambition, can easily snap these encircling bands. What we want most, is mutual attachment—we need moral ligaments that can outlast bonds of adamant, and hold together our great social fabric, when parchment compacts shall have mouldered away.

Home Missions serve to knit society together by these powerful and enduring ties. The mode of operation is this: a church in a more favored position, reaches out a helping hand to a feeble

congregation at a distance. By that aid, the worship of God is established, and all its attendant blessings flow in, just when they are most needed—when the settlement is in a forming state. Thus its spiritual and temporal prosperity are secured. The fathers and mothers of that settlement look round on their valued privileges, and enjoy the comfort of knowing that their children have a goodly inheritance. They observe around them good order, prosperity, a state of society that sheds a charm over their abode and all the means of spiritual improvement. They cannot forget, that it was by the seasonable aid of others, they have been thus favored. And just in proportion, as they prize the just welfare of their children, and the best interests of the community, will they cherish a lasting gratitude to their kind friends at a distance. In some instances, the young of a congregation at the East, direct their benefactions to a small church at the West. They nurse and encourage the object of their care. An epistolary correspondence is kept up. The church prays for its young friends, and they often look on the map, for the place where their missionary feeds a flock in the wilderness. They become firmly attached to each other, and the attachment can never turn to hatred. There is a moral ligament which the sword of war cannot sever, which the fires of war cannot melt. There are not a few such ligaments that cross from east to west, from north to south, interlacing the loose materials of our social fabric, and binding it firmly together. We may depend more confidently on these delicate, yet strong cords for the integrity of the Union, than on the profoundest policy and the most consummate skill of our statesmen.

When a congregation has thus received aid, until its own resources multiply, it becomes itself a benefactor to others. It turns off to the more needy the supply it has received, and swells that supply by contributions of its own. Instead of hanging upon the upholding arm of others, it reaches out itself an arm of strength, on which the weak may lean. Thus, there is a new growth of benevolent action. It may be illustrated by the growth of an Oriental tree—

The fig tree, not that kind for fruit renowned
But such as at this day to Indians known,
In Malabar or Deccan spreads her arms

Branching so broad and long, that in the ground
The bended twigs take root, and daughters grow
About the mother tree, a pillared shade,
High over-arched and echoing walks between.

MILTON.

Home Missions are spreading thus over our heads a common shelter, that can extend indefinitely its genial shade ; and they are sending thus, throughout the soil of society, roots of affection, which no mischievous hand shall be able to eradicate. While this ' Indian fig' of our American Israel continues to stretch forth its branches, and while they continue to become the parent trunks from which other branches shoot out, we may hope that reciprocated attachment will bind together our vast country. Under the sylvan arches and cooling shade of this spreading growth, the Genius of our government may ever find a grateful retreat, and here she may feel that her home is permanently fixed. N. T.

[*N. Y. Evangelist.*

Aerolites or Thunderbolts.

Dr. Wall's theory of the formation of these fearful missiles, which was read before the Society of Arts, appears to us to possess strong features of probability. "They are known," he remarked, "to consist of an alloy of iron, with some traces of other metals, and are generally invested with a vitreous glaze of earthy matter—features which evidently denote a volcanic origin. It is but natural to suppose that fires, such as those we have in the centre of the earth, reduce the ores with which they come in contact into a metallic liquid state, and thus afford the supply of magnetic power to the atmosphere, to which they ascend through the vent afforded them by the volcanoes. Hence, no doubt, the vast electro-magnetic concentration always found to exist in the vicinity of volcanic mountains. It is well known to those conversant with the operations of a foundry, and who are familiar with the properties of heat, that portions of the most ponderous metals, when in combination with other matter of a more volatile nature, are eliminated and dissipated like steam.

While, therefore, fusion is progressing in these vast subterranean furnaces, iron

in alloy with carbon, sulphur, and the semi metals, is carried off in minute particles, and finding egress through the crater, is borne aloft simultaneously with the free carbon issuing in the form of smoke. Notwithstanding the extremely minute division which has taken place, the nature of the affinities of these metallic atoms remains unaltered, and they will infallibly coalesce on the first occasion which offers for a reunion. So long as the atmosphere continues in one uniform settled state, no chance can take place ; but when the electric fluid which still pervades them, and holds them in the extended but continuous bond, becomes disturbed, whether from excitation or alteration in the equilibrium of the positive and negative conditions, the power which has kept them asunder is then overcome, and the atoms rush again into union. The phenomena indicating, or at least coincident with such an occurrence, are strikingly observable. Clouds of a great magnitude and of a dark and lowering aspect, stretch athwart the heavens in irregular but determined course towards the rendezvous where these operations are about to commence. In these masses of clouds considerable friction or attrition takes place, from the force of the winds and other causes.

While they are thus preparing for the assault, a strong commotion is perceptible, which is nothing more than an adjustment of power, producing, in the act of obtaining a due balance, the lightning's flash, and the thunder's roll ; the metallic particles are thrown into agitation, their affinities are excited, and they once more rush together. Thus united, they form a body outweighing the specific gravity of the atmosphere, and are consequently born to the earth in the form so well known as thunderbolts—the carbon, sulphur, and phosphorus, as well as other alloys, combining to accelerate and augment the ignition of the fiery ball in its falling course. This course, though doubtless modified by accidental circumstances, has been generally remarked as bearing on an angle of forty-five, along a meridian from north to south. These aerolites often travel to a great distance and fall in parts where there are no appearances of storm, or the least change in the atmosphere.—*The Patent Journal.*



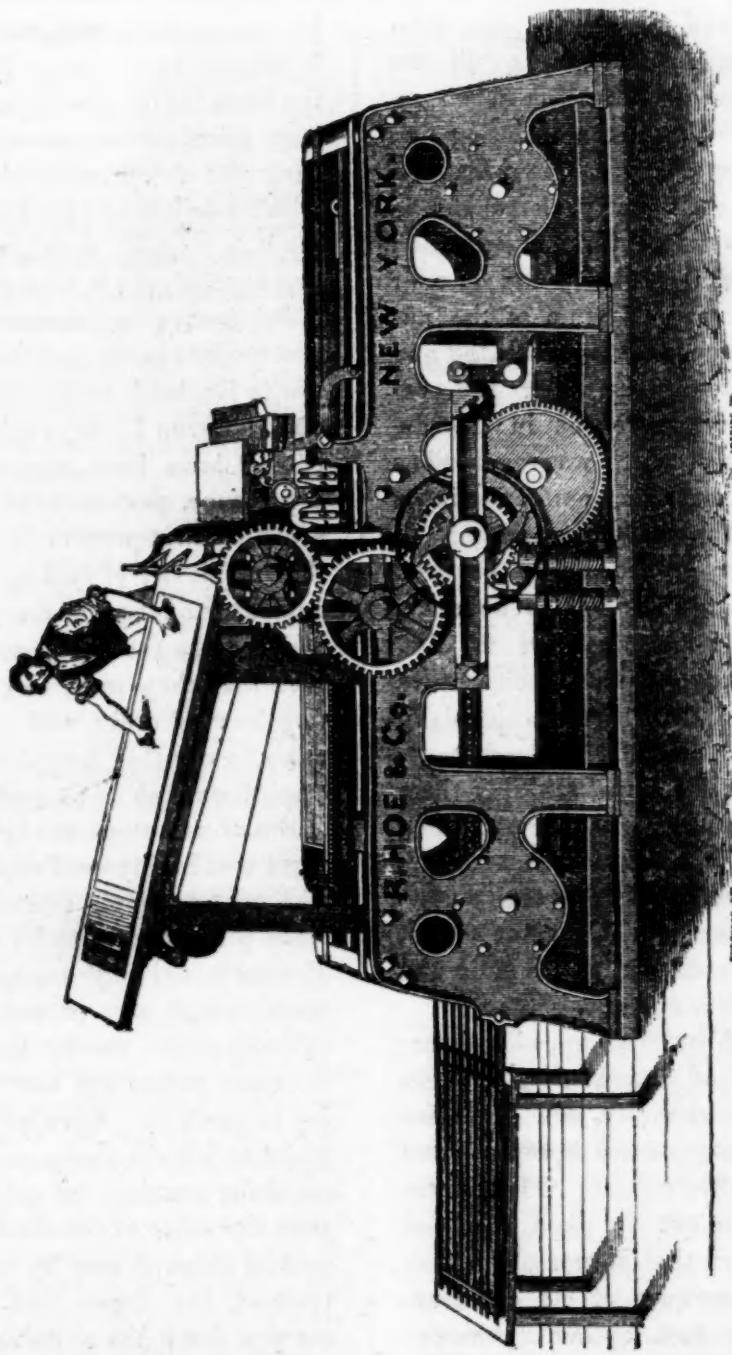
THE WOODPECKER.

"Woodpeckers of every species, (*Picidae* VIGORS), probably without exception, are carpenters in the sense in which we have used the term, that is, they not only bore into trees in pursuit of insects for food, but chisel out holes for the purpose of nestling. Being endowed by Providence with admirable organs for this purpose, we have a right to infer that they take as much pleasure in the employment of the faculties bestowed upon them as we do in the most agreeable occupations. Buffon, on the other hand, considers such labours a slavish misery to the race of woodpeckers, whom he represents as peculiarly wretched examples of the inequality to be found in the distribution of happiness.—*Nat. Hist.*

"We turn with pleasure to the enthusiastic defence of the bird, by Wilson, in his account of the gold-winged wood-pecker (*Colaptes auratus*, SWAINS.)

"The abject and degraded character," says he, "which the Count de Buffon, with equal eloquence and absurdity, has drawn of the whole tribe of woodpeckers, belongs not to the elegant and sprightly bird now before us. He is not 'con-

strained to drag out an insipid existence in boring the bark and hard fibres of trees to extract his prey,' for he frequently finds in the loose, mouldering ruins of an old stump (the capital of a nation of ants), more than is sufficient for the wants of a whole week. He cannot be said to 'lead a mean and gloomy life, without an intermission of labour,' who usually feasts by the first peep of dawn, and spends the early and sweetest hours of morning on the highest peaks of tallest trees, calling on his mate or companions, or pursuing and gambolling with them round the larger limbs and body of the tree for hours together; for such are really his habits. Can it be said that 'necessity never grants an interval of sound repose' to that bird, who, while other tribes are exposed to all the peltings of the midnight storm, lodges dry and secure in a snug chamber of his own constructing; or that 'the narrow circumference of a tree circumscribes his dull round of life,' who, as seasons and inclination inspire, roams from the frigid to the torrid zone, feasting on the abundance of various regions?"



AN IMPROVED PRINTING PRESS.

Our readers will find prints and descriptions of the two printing presses in our first volume, ps. 326, 343, with the first improvements; and those of a modern cylinder press in Vol. II. page 409.

Our readers will easily understand, that presses of different forms and sizes are required for different kinds of work; and that those constructed on different principles may be proper for different purposes and in different places at the present time. For example: in a large

book printing office in a city, like that of Messrs. Harper, in Cliff street, N. York, where their beautiful quarto Bibles are printed, and other works in elegant style, with fine wood cuts on almost every page, perfect execution is of chief importance: while in other large city offices, or sometimes in certain departments of them, where cheap books are printed, rapidity of operation is the first requisite.

In this kind of offices we find a furnace erected in the cellar, and a small

steam-boiler and engine in use, with shafts and bands extending to all the presses, to give them motion when required. But where the printing of books, pamphlets, bills, &c. is done in a small office in the country, the object is too trifling to warrant much expense; and there we shall probably find one or more hand-presses, of some of the numerous kinds successively invented and introduced among us, after the career of improvement began in this department, each of which was regarded as a specimen of surprising perfection in its day, but soon superseded by another.

Hand labor must necessarily be used where but little printing is to be done, and at intervals; and therefore we find many of our small country newspapers printed by hand, while those which daily issue from our cities in thousands, demand machines which will multiply them at the greatest possible rate. And some of our most ingenious mechanics are continually exerting their inventive powers to attain greater and greater speed, to multiply printed sheets to more and more thousands in an hour.

Among the most experienced and successful of these mechanics, are the Messrs. Hoe, of this city, one of whose improved printing presses is represented at the head of this article. On comparing this with the cut on page 409, Vol. II. it will be seen that it resembles it in the general principles of its construction. They are both cylinder presses: the pressure of the paper upon the type being effected by making the bed of type pass under a large iron roller, which saves the labor and time required in pulling the lever and moving the bed in and out, by the power of the arm, for every impression made. We may give one or two more other specimens of presses of different sizes, invented by the same manufacturers, preparatory to a description of a still later one, of extraordinary powers, which has not yet been announced, but

has been constructed, and is expected to be soon in operation in Philadelphia, being intended for a newspaper of that city. The principle is one which has never been put in operation on a large scale, which admits the "feeding" of the press, (as it is termed), with great rapidity,—that is supplying it with paper.

It has been stated, within a few days, that presses have just been brought into use in England, capable of printing 10,000 and even 12,000 copies in an hour: but we have been assured by a man of experience, that they are not likely to prove useful in practice, in consequence of the complexity of feeding the parts: the number and length of the tapes and cords, which carry the sheets to the bed, being such that they must be continually getting out of order, and quite unable to carry in our thin American cotton paper smooth enough to be well printed.

But to return to our print above: the parts will hardly need explanation, to one who has attentively considered our previous prints and remarks on this subject. The parts, although somewhat differently proportioned and arranged than in the cylinder-press before introduced, bear the same names and have the same offices to perform. Here we have the feed-board to lay the damp paper upon, prepared for printing, the grips or fingers to seize the edge of the sheets, as they are pushed forward, one by one, by the attendant, the tapes and cords which carry it down, the cylinder revolving, and bed of type sliding forwards and backwards by turns, the inking-rollers, with their various movements to receive the ink and to give it to the type with uniformity, the delivery-board, where the printed sheet is thrown out by the cords and tapes, and laid on the table by the hinge-board seen there. Here we have also the rag-wheel, with its universal joint, under the bed, which gives to it successive opposite movements, the wheel to which the band is applied, &c. &c.

Egyptian Mummies.

We have heretofore published some brief remarks on Egyptian Mummies, particularly in our first volume, page 321: but we had no idea at that time, that we should ever be put in possession of such an amount of information on that subject, as Mr. Gliddon has given us in his recent lectures. Those of our readers who are familiar with Rollin's Ancient History, know how minute are the details it gives, from ancient writers, of the process of embalming, as practised in some of the later ages of Egypt. However, these are points of secondary importance, compared with a long series of facts recently brought to light by the investigations of the learned men of Europe, which we will now endeavor to communicate to our readers in outline, as our limits will not permit us to give them in full.

The origin of Mummification (or Mummy-making), is uncertain, but is conjectured to have arisen from circumstances. The oldest mummies are found to be penetrated with natron, nitre and alum, and dried. Those chemical substances are found in considerable quantities in the sandy soil which borders the rich alluvial banks of the Nile. It is supposed that the ancients may have at first buried their dead in the sand, and thus practically learned the preservative powers of the salts it contains, aided by the heat of the sun. Afterwards they imitated the same process by art, baking the bodies in ovens, after saturating them with salts, &c.

'The Ritual of the Dead' was a collection of prayers made in the course of the ceremonies performed at funerals, with directions for their orderly observance. Numerous pieces of papyrus had been found with the mummies, the meaning of which was never understood until many of them had been collected and laid by as curiosities. They were deciphered and translated afterwards, but it was not until lately discovered that the writings were parts of a great whole. The entire book was deposited only in the richest tombs: the poorer mummies frequently furnishing but a single page. Not more than half a dozen complete copies are known; and these, having been compared with each other, and with many of the fragments, a translation has been made, and is soon to be published. This work,

called the *Todtenbuch*, (or Book of the Dead), in German, contains many allusions to the opinions and customs of the Egyptians, chiefly their superstitions and idolatrous practices.

The discoveries made by the archæologists give us an astonishing view of Egyptian idolatry and subserviency to an arrogant and oppressive priesthood. The doctrine that it was necessary to be mummified to be happy after death, was taught by the priests and believed by the people; and the former took advantage of it to degrade the nation to an abject spiritual slavery, and to enrich themselves. The making of mummies and the burial of them were very expensive processes; and, as every dead man, woman and child was mummified for many centuries, and priests performed every part of the complex business, and were paid their own prices, their wealth became enormous. The priests monopolised every office, as Mr. Gliddon facetiously remarked, 'from that of the doctor, who killed the patient, to that of the undertaker, who completed the long work, by locking and sealing the door of the tomb, which, after an hundred ceremonies and a farewell feast, was to be forever left in silence and darkness.'

Every temple had a complete mummy factory connected with it, containing ovens for drying the body after the preserving substances had been applied to it; potteries for making urns, to contain the vitals; and looms to weave the immense quantities of fine linen used as wrappers. At the same time large tracts of the surrounding soil were used for plantations to raise the materials; and every person employed in all these departments belonged to the fraternity. The mummy was carried to its resting-place by a procession, conducted with ceremony; and this, which was called, 'the journey of the mummy,' is represented over and over again in paintings on the walls of the tombs. Some writers have supposed them to represent the adventures of the soul after death; but these are otherwise described, and very particularly, in other pictures, and in the Ritual of the Dead. A more childish set of superstitions is hardly to be found; though in certain points it bears some resemblance to those of the Greeks, Romans and Mohamedans.

Superstitions.—It was believed that

the soul set out on its journey to the seat of judgment at the moment of death ; and that, when the mummy was locked in the tomb, the body set off in pursuit of it, as no judgment could be held until they became reunited. After various adventures they came together, and had to reply to numerous questions, and to confess their past sins to forty-two confessors, (whose heads are represented in many paintings,) after which judgment was pronounced. One of the grounds on which the deceased claimed eternal happiness, (as the Ritual shows,) was, that his mummy had been duly prepared, and was standing upright.

Among the facts explained since this subject has been so much better understood, we may mention a few. The vast cemeteries of Thebes contained a multitude of embalmed bodies, vastly too great for a city even of such size. This is now accounted for. The rich and extensive Delta, with its great population, had no place fit for interment, being a low alluvion, so moist that mummies could not be preserved in it. The vicinity of Thebes was the nearest dry and rocky region ; and there the people were compelled to make their sepulchres. The 'Journey of the Mummy,' therefore, was often made to that vicinity, and no doubt in various ways, as it is variously represented in many paintings : by land, by water, drawn by animals or carried by men.

The Pyramids.—The construction of these celebrated and astonishing structures, with the curious facts attending the investigations made among them, the curious discoveries recently made around and within them, afforded us much more interest and instruction than we had expected.

They must have been erected, in almost every instance, for the tomb and monuments of a single person, and that of a king, or in some modern instances, the ruler of a province. In this they resemble the western sepulchral mounds, according to the observations made by Mr. Squier and others ; and also in having the tomb always under the apex.

The oldest inhabitant of Russia, is said to be a woman now living in Moscow, who is 168 years of age. At the age of 122 she married the fifth husband

Madeira.

The first appearance of Madeira did not come up to the idea we had formed of its beauties, from the glowing description of travellers. It exhibited nothing to the distant view but a bare and broken rock, of huge dimensions, which, though grand and imposing, is peculiarly dark and gloomy ; and it was not until we had made our way close under the land, that we could discover the green patches which are everywhere scattered over the patches of its dark red soil, even to the tops of the highest peaks.

The mountain verdure was afterwards discovered to be owing to groves of heath and broom, which grow to an extraordinary height, aspiring to the stature of forest trees. In addition to these groves, the terraced declivities, covered with a luxuriant tropical vegetation, change, on a closer approach, its distant, barren aspect, into one of extreme beauty and fertility.

The most striking peculiarity in the mountain scenery is the jagged outline of the ridge, the rudely-shaped towers, and sharp pyramid of rock, which appear elevated on the tops and sides of the highest peaks, as well as on the lower elevations, and the deep precipitous gorges, which cut through the highest mountains, almost to their very base.

The shores of the island are mostly lofty cliffs, occasionally facing the water with a perpendicular front, one or two thousand feet in height. The cliffs are interrupted by a few small bays, where a richly cultivated valley approaches the water between abrupt precipices, or surrounded by an amphitheatre of rugged hills. These narrow bays are the sites of the villages of Madeira.

As we sailed along from its western end, we occasionally saw, in these quiet and peaceful situations, small white-walled villages, each with its little church at the outlet of the gorges. We were particularly struck with that of the Camera de Lobos, a few miles to the westward of Santa Cruz hill. This is the largest, and is the most interesting of all, from its having been the first point settled by Europeans. The high precipices were new to us Americans, so different from what we are accustomed to in the United States. The scene was still more striking, and our attention was more forcibly arrested, when passing un-

der cliffs of some sixteen hundred feet above us. We were so near them that the sound of the surf was distinctly heard. The whole effect of the view was much heightened by a glowing sunset, in one of the finest climates in the world.

Off the eastern cape of the island, many isolated rocks were seen separated from the land, with bold, abrupt sides and broken outlines. The character of these rocks is remarkable; they stand quite detached from the adjoining cliffs, and some of them rise to a great height, in a slender form, with extremely rugged surfaces and broken edges. Through some the waters have worn arched ways of large dimensions, which afford a passage for the breaking surf, and would seem to threaten, ere long, their destruction.

Similar needle-formed rocks are seen off the Northern Deserts, an island lying some miles east of Madeira. One of them is often mistaken for a ship under sail, to which, when first seen, it has a considerable resemblance. It stands like a slender broken column, several hundred feet in height, on a base scarcely larger than its summit.

Funchal has a very pleasing appearance from the sea, and its situation, in a kind of amphitheatre formed by the mountains, adds to its beauty. The contrast of the white buildings and villas, with the green mountains, forms a picture which is much heightened by the bold, quadrangular Loo Rock, with its embattled summit, commanding the harbor in the fore-ground.

The island, throughout, is rough and mountainous, but the steeps are clothed with rich and luxuriant verdure. Terraces are visible on every side, and every spot that the ingenuity of man could make available has been apparently turned to advantage, and is diligently cultivated. These spots form an interesting scene, particularly when contrasted with the broken and wild back-ground, with the white cottages clustered at the sea-shore, and gradually extending themselves upwards, until the eye rests on the highest and most striking building, that of the convent of Nostra Senora de Monte.

Through the western half of the island runs a central ridge, about five thousand feet high, on which is an extensive plain, called Paul de Serra, which is mostly

overgrown, and is used especially for breeding mules and horses. The eastern portion of the island, though quite elevated, is less so than the western.

The vallies usually contain a strip of land of extreme fertility, through which winds the bed of a streamlet, that becomes a mountain torrent in the rainy seasons, but is nearly or quite dry in summer.

The landing at Funchal is on a stony beach, and is accompanied with some little difficulty, partly on account of the surf, but more from the noise, confusion, and uproar made by the native boatmen, in their efforts to drag their boat upon the beach. This operation, they however, understand, and are well accustomed to, and those who desire to land dry, will be wise to employ them.

The rides of Madeira are beautiful. The roads are well made, easily and safely travelled on a Madeira poney, with a poney boy. On proceeding out of Funchal, fruits, flowers and vegetables seem crowding upon the sight. In the lower portions, groves of orange and lemon trees are mingled with the vineyards, the trees are loaded with fruit; then, as one mounts higher, bananas, figs, pomegranates, &c. are seen; and again, still higher the fruits of the tropics are interspersed with those of the temperate zone; namely, apples, currants, pears and peaches, while the ground is covered with melons, tomatoes, egg plant, &c. Further beyond, the highest point of cultivation is reached, where the potatoe alone flourishes. Then the whole lower portion is spread before the eye; vineyards occupying every spot that is susceptible of improvement, and one rides through paths hedged in with geraniums, roses, myrtles and hydrangias. These plants which we had been accustomed to consider as the inhabitants of our parlors and green-houses, are here met with in gigantic forms, and as different from our small, sickly specimens as can well be imagined. For those unacquainted with the luxuriance of the tropical vegetation, it would be difficult to conceive an idea of this favored spot. Many of the terraces on which the vines are grown, are cut on the sides of the hills, and the visitor cannot but admire the labor expended on the stone walls that support them. The road at times lead through small villages.—*Wilkes' Exploring Expedition.*

Constitution.

This packet-ship, with the exception of some of the more ancient of the vessels in the service of the East India Company, is perhaps the largest merchant or packet ship in the world. Her custom house tonnage is 1500, though her actual capacity is 1800 to 2000 tons. She was recently launched in New York.

The following are her dimensions:

	ft. in.
Length of keel,	172 10
Length on deck,	188 5
Breadth of beam	40 4
Mainmast,	93 0
Topmast,	51 0
Topgallant,	28 6
Royal,	18 6
Pole,	4 6
	195 6
Main-yard,	83 0
Topsail,	65 0
Topgallant,	51 0
Royal,	41 6

The Constitution has made masts like our men-of-war, and they are constructed in the most substantial manner. The fore and main masts are 33 feet, and the mizen mast 25 feet in diameter. The diameter of the main yard is 22 1-2 feet. The measurement of the spars exceeds that of any other vessel built in this country.

She is a three decker, and contains the most ample accommodations for passengers, as well as cargo. The steerage is spacious, and well ventilated, and could comfortably accommodate more than the government allowance, which would be about 650.—There is provision made for the comfort of second class passengers in state rooms on the main deck, forward of the cabin, where they can receive much better accommodations than are usually allowed to this description of passengers. The main cabin will afford berths for twenty-one. It is built with the greatest regard to comfort, and is finished in the richest style. The state-rooms are the largest we have seen, and are not surpassed by those on any of our first class steamboats. They are, indeed, as commodious and convenient as many rooms at the hotels. They are ventilated in a superior manner; and the large pump of a new construction, allowing sixteen men to work it, will permit the stench of bilge water to be entirely removed. The figure-head is a command-

ing and well wrought statue of Washington.—On the stern is an eagle surmounting a globe, beneath which are *bas relievos* of Washington, with Hope and Liberty on each side.

The Constitution does not at first sight, appear as large as she really is; owing to the symmetrical proportions of her model, which is of remarkable beauty. This is, however, the highest evidence of the faultlessness of her proportions, and is true of the most distinguished specimens of architecture. The builders, Messrs. Brown and Bell, have not regarded expense in the construction of this ship. Though they have built upwards of one hundred sail, and have attained a reputation second to none in the world, yet they declare that the Constitution is their crowning effort.

She belongs to Messrs. Woodhull and Minturn's line of Liverpool packets. In England, where our packet ships have been looked on with wonder, the Constitution will be visited by thousands, as one of the most notable specimens of naval architecture afloat.

She is to be commanded by Capt. J. Britton, late of the packet ship Rochester, and formerly of the British navy,—in which he attained the highest distinction for skill and prudence, and for which he attained the highest distinction for skill and prudence, and for which he has received several highly honourable testimonials. He was selected out of 1300 applicants to superintend the construction of the Solway, and two other steam frigates for the British naval service. He was in command of the Solway until 1844, when he took command of the Rochester.

ROYAL FLOUR AND A ROYAL PRICE.—Last fall, Mr. Henry Smith, an enterprising miller of Leroy, in this county, sent six barrels of the choicest superfine Genesee flour, manufactured at his mill in Wheatland, Monroe county, to Queen Victoria, and for this, in due time, he received from her Majesty the comfortable little sum of three thousand dollars. The flour was put up in highly finished barrels, neatly varnished, enclosed in sacks, and forwarded direct to the Queen at London. This fortunate experiment seems to have suited her Majesty's palate, for in addition he has received an order for three thousand barrels more 'of the same sort,' which he has forwarded.

AGRICULTURAL.

Important Facts for Farmers.

A QUESTION OF BREAD.—Men have been long investigating truths; and many important truths, as principles, are developed, without being connected with practical purposes, or bringing out facts by application.

Wheat is known to be the most nutritious of all grains, because it contains a larger quantity of gluten. But I do not know that it is generally understood, except by scientific agriculturists, that the quantity of gluten may be varied both by climate and the character of the manure. Yet such is nevertheless a well attested fact.

1. Wheat of warm climates has more gluten, is harder, and less easy to grind. The difference between the two, in climates not very distant, may safely be calculated thus

Warm Climate.	Cold Climate.
Starch, 56. 5	Starch, 71.49
Gluten, 14.55	Gluten, 10.96
Sugar, 8.48	Sugar, 4.72
Gum, 4.90	Gum, 2.32
Bran, 2.30	Bran, 1.
Water, 12.30	Water, 10.00
98.58	100.49

2. The gluten of wheat may be increased by the character of the manure used.

From so much of the above facts as show how far climate varies the quantity of gluten, it results that there is a great advantage in Alabama wheat over the Northern. Now what is this advantage as applied to practical purposes? I will explain.

Two pounds of Cincinnati flour were weighed out, and to it was added one quarter of a pound of yeast. Two pounds of McAlroy's (Alabama) flour weighed, and in a like manner was added one quarter of a pound of yeast—both were accurately weighed in the same scales and at the same time, and both made into loaves and baked in the same oven. The result was as follows:—The Cincinnati flour yielded a loaf weighing 3 lbs, —gain 33 per cent. McAlroy's flour yielded a loaf weighing 3 1-2 lbs.—gain 55 per cent. The gain in Alabama flour 22 per cent! Or every five barrels of

Alabama flour, is equal to six of Northern flour.

But says one, the Northern flour must be the better, because look at the loaf; it is whiter and lighter. True, but let it be remembered, that this difference with respect to whiteness is the difference in the preparation in grinding; and that of lightness, is chiefly in the absence of gluten. The quality of the flour may be affected by the mode of preparation and grinding; but the quantity of the several principles composing it cannot. The same quantity of starch, gluten, &c., must be retained, whether it be ground in a good or a bad mill.—*Ex. Paper.*

Fruits in Maine.

We learn from the Maine Farmer that it has been proposed in that State to have a Convention composed of fruit growers from different sections, for the following purposes: To collect the best native fruits of that state and compare their merits, and fix on a list of such as are found to be the most valuable for general cultivation, describe them and introduce them to the public; to collect the best fruits that have originated in other parts of the world, that bid fair to succeed well in that climate; to collect and disseminate the best information on the cultivation and preservation of fruits; to afford farmers, gardeners, orchardists, and nurserymen, an opportunity to associate together for the purpose of social acquaintance and civilities, and mutual improvement.

This is a noble and excellent plan, and if properly carried out, and cultivators generally avail themselves of the advantages it affords, it will diffuse throughout the State valuable information on a subject on which there is now a great deficiency; and it will be the means of adding greatly to the comforts and pleasures of every family in the state; it will also add largely to its wealth and resources.—*Boston Cultivator.*

The high and boisterous flow of spirits so often praised by superficial observers, that keeps up during a visiting party, or while effect is to be produced, and then sinks down to absolute dullness, is a sure sign of a coarse nature.—*Art of Conv.*

POETRY.

Childhood's Sorrow.

Oh ! childhood's woe is bitter ;
It ever makes me grieve
To mark the pale lip quiver,
The little bosom heave :
But cruel is the chiding
When tears unbidden rush,
The tyranny that sealeth
The fountain in its gush.

It is a sight of pity,
The fearless, choking grief,
When sobs are only struggling
That may not find relief.
Alas ! when age forgetteth
The pangs of early years,
And striveth to debar them
The privilege of tears !

Ye may forbid the murmur,
Nor yet the crying spare ;
But chide ye not their weeping,
Whose lot it is to bear.
Those tears that flow so quickly
Shall prove an April shower,
That passeth soon and leaveth
No stain upon the flower.

Wo worth the worldly wisdom,
That in its iron mood
Would teach the young heart hardness
And deem such hardness good !
The stoic's stern enduring
Is no merit with our God ;
He would not have his children
Despise the chastening rod.—*Sel.*

ENIGMA.—No. 33.

I am composed of 27 letters.
My 1, 15, 26, 5, 24, 6, 27, is a town in Afghanistan.
My 2, 17, 13, 22, 21, is a lake in the Russian Empire.
My 3, 16, 1, 23, 26, is a river in South America.
My 4, 10, 17, is a town in England.
My 5, 26, 8, 6, 3, is a county in North Carolina.
My 6, 18, 17, 15, 16, 9, 14, is a town in Holland.
My 7, 19, 26, 3, 25, is a gulf south of France.
My 8, 16, 3, 4, 23, is a lake in Sweden.
My 9, 22, 12, 25, 20, is a sea in Europe.
My 10, 26, 15, 4, 24, 21, is a town in Arabia.
My 11, 6, 14, 9, 5, 13, is an island in the North Pacific Ocean.
My 12, 23, 21, is a town in New York.
My 13, 19, 18, is a town in Scotland.
My 14, 13, 19, 26, is a river in Mexico.
My 15, 21, 23, 5, 12, 25, is a county in Texas.
My 16, 1, 4, 18, is a town in Bohemia.

My 17, 2, 7, 25, 26, 3, is a county in Virginia.

My 18, 21, 14, 11, 16, 6, 20, is a range of mountains in Asia.

My 19, 13, 5, 2, is a river in England.

My 20, 26, 8, 16, is a cape of Australia.

My 21, 14, 2, 10, 24, 13, is a county in Virginia.

My 22, 15, 9, 3, 16, is a river in Europe.

My 23, 6, 19, is a cape of Newfoundland.

My 24, 26, 8, 13, is a county in Wisconsin.

My 25, 6, 1, 15, 13, 10, 12, 4, 17, is a river in the Chinese Empire.

My 26, 5, 13, 27, 1, 16, is a cape of Brazil.

My 27, 4, 8, 17, 13, 3, is a town in Georgia.

My whole is the name of a distinguished American General. M. F. ZUTWILER.

Conundrum.

(*By a boy studying French.*)

Why is the letter *s*, in the French word for "neighbor," like my nose ?

An Old One.—Why is a tallow-chandler the most unfortunate, as well as the worst of mankind ?

The Spanish Smuggler's Secret Writing.—A Spaniard who had been a confederate with smugglers in Catalonia, once communicated to us some of the secrets of their trade. Our readers can perhaps make out the meaning of the following sentence, written in one of their modes, but in the English language.

Tolamortorowgathelesoldraierstywilldibenoheresoatnotenda.

To our Old Subscribers.—Those who do not wish to receive our Third Volume, are requested to retain the first five numbers of Vol. III. and send back the 6th by mail, with their names and residences on it, when it shall cease.

Improvements in Prospect.—We wish all our readers to have a little patience, as we hope soon to present them with something new and interesting.

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